Trend Study 29-4-03

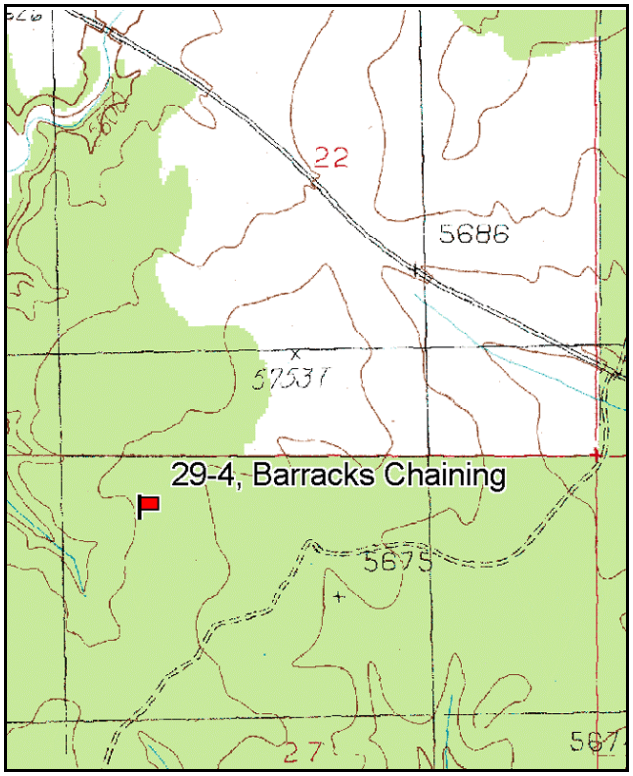
Study site name: Barracks Chaining . Vegetation type: Chaining .

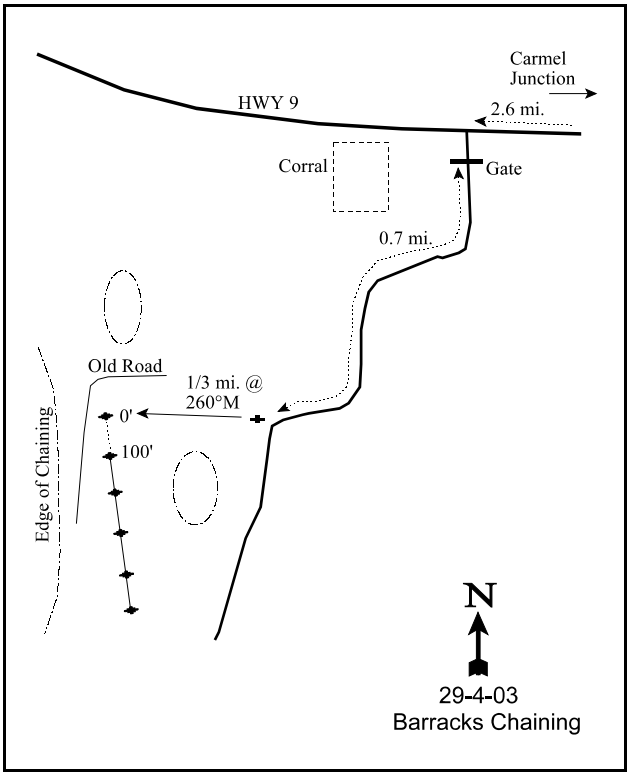
Compass bearing: frequency baseline 165 degrees magnetic.

Frequency belt placement: line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

LOCATION DESCRIPTION

From the junction of Hwy 89 and Hwy 9 (Carmel Junction), proceed west on Hwy 9 for 2.6 miles to a road on the left (south) side of the Hwy. Turn left on this road, go through a gate, proceed 0.7 miles passing a corral on the right side of the road to a witness post on the right side of the road. From the witness post, walk ~1/3-1/2 mile at 260 degrees magnetic to the 0-foot stake.





Map Name: Mount Carmel

Diagrammatic Sketch

Township 41S , Range 8W , Section 27

GPS: NAD 27, UTM 12S 4120537 N, 346198 E

DISCUSSION

Barracks Chaining - Trend Study No. 29-4

This is a new trend study established in 2003 on an old chaining located about 3 miles west of Carmel Junction and approximately ½ mile south of Highway 9. The site samples a chained area surrounded on 3 sides by unchained pinyon-juniper woodland. It has an west aspect and a gentle slope of 7%. Elevation is 5,730 feet. This is an important area for wintering deer. Pellet group data taken on the site estimated 45 deer days use/acre in 2003. Cattle also use the site with 14 days use/acre being estimated (34 cdu/ha).

Soil at the site is a deep sandy clay loam. Effective rooting depth is estimated at 16 inches. There is very little rock or pavement on the surface or within the soil profile. Phosphorus is low at only 4 ppm when 10 ppm is considered minimal for normal plant growth and development. Organic matter is also low at about 1%. Soil temperature is high averaging nearly 71°F at a depth of 18 inches. The high temperature of the soil is indicative of a dry soil profile which makes shrub recruitment difficult. There is still a lot of old chaining litter scattered over the site but bare ground is common with a cover value of 47%. There are signs of erosion in the form of pedestalling, flow patterns, and soil movement. Most of this is localized and the erosion condition class was determined to be slight in 2003.

There are several species of preferred browse on the site including serviceberry, mountain big sagebrush, squaw-apple, and bitterbrush. All occur in very low numbers and total browse cover, including pinyon and juniper tree cover, averaged about 8% in 2003. Serviceberry numbers only 100 plants/acre. These are large shrubs averaging nearly 7 feet in height. Available portions of these shrubs show moderate use and good vigor. Mountain big sagebrush has a density estimated at only 60 plants/acre. They showed moderate to heavy use, good vigor, with 33% classified as decadent. No seedlings or young were encountered. Bitterbrush also showed moderate to heavy use. Vigor was classified as poor on 11% of the population and 33% were rated as decadent. Bitterbrush density numbers 180 plants/acre with no young being sampled in 2003.

Pinyon and juniper trees are still found in the chaining. Point-quarter data estimated a density of 47 pinyon and 56 juniper trees/acre. Average diameter was estimated at 3.1 inches for pinyon and 6.5 inches for juniper. About 41% of the pinyon and juniper were in the 1 to 4 foot height class while another 41% were in the 4 to 8 foot height class. Approximately 18% of the juniper trees sampled were mature trees that were chained over but still living. Total line-intercept canopy cover for pinyon and juniper was estimated at 3%.

The herbaceous understory is diverse but only moderately abundant. Six perennial and 2 annual grasses were encountered in 2003, producing only 6% cover. Seeded species, crested and intermediate wheatgrass, are the most abundant accounting for 20% and 56% of the total grass cover respectively. Forbs are abundant and produce more cover than grasses. Common species include Searls prairie clover, coyote tobacco, lemon scurf-pea, cutleaf nightshade, and scarlet globemallow. Use of grasses and forbs appeared light when the site was read on July 27th of 2003.

APPARENT TREND ASSESSMENT

Soil conditions are marginal. There is some chaining litter remaining on the surface but a lot of bare ground remains. The soil is sandy and has a relatively high infiltration rate but some erosion is occurring. The soil erosion condition class was determined to be slight. Several preferred species of shrubs occur on the site including serviceberry, mountain big sagebrush, and bitterbrush. All of these species occur in very low numbers. Mountain big sagebrush and bitterbrush are moderately to heavily hedged, display good vigor, but have moderate levels of decadence. No seedlings or young for either species were encountered in 2003. The herbaceous understory is diverse with forbs producing more cover than grasses. Common grasses include seeded crested and intermediate wheatgrass which combine to produce 76% of the total grass cover. Several forbs are common

but most are weedy or early seral species.

HERBACEOUS TRENDS --
Management unit 29 , Study no: 4

Type	Species	Nested Frequency '03	Average Cover % '03
G	Agropyron cristatum	46	1.20
G	Agropyron intermedium	117	3.42
G	Bouteloua gracilis	1	.15
G	Bromus tectorum (a)	9	.57
G	Oryzopsis hymenoides	5	.03
G	Sitanion hystrix	2	.00
G	Sporobolus cryptandrus	48	.71
G	Vulpia octoflora (a)	2	.01
Total for Annual Grasses		11	0.57
Total for Perennial Grasses		219	5.53
Total for Grasses		230	6.11
F	Amaranthus graecizans	4	.01
F	Chenopodium fremontii (a)	-	.15
F	Dalea searlsiae	33	2.53
F	Erigeron divergens	1	.03
F	Euphorbia spp.	27	.55
F	Hymenopappus filifolius	5	.06
F	Lotus utahensis	2	.15
F	Nicotiana attenuata (a)	6	1.04
F	Penstemon humilis	1	.00
F	Penstemon leonardi	1	.03
F	Phlox longifolia	9	.02
F	Psoralea lanceolata	15	1.61
F	Solanum triflorum (a)	23	1.40
F	Sphaeralcea grossulariaefolia	66	2.55
F	Tragopogon dubius	-	.03
Total for Annual Forbs		29	2.59
Total for Perennial Forbs		164	7.60
Total for Forbs		193	10.20

BROWSE TRENDS --
Management unit 29 , Study no: 4

Type	Species	Strip Frequency '03	Average Cover % '03
B	Amelanchier utahensis	3	1.70
B	Artemisia tridentata vaseyana	3	.38
B	Juniperus osteosperma	3	1.62
B	Pinus edulis	3	1.00
B	Purshia tridentata	7	3.03
Total for Browse		19	7.75

CANOPY COVER, LINE INTERCEPT --
Management unit 29 , Study no: 4

Species	Percent Cover '03
Amelanchier utahensis	1.60
Artemisia tridentata vaseyana	.73
Juniperus osteosperma	1.83
Pinus edulis	1.23
Purshia tridentata	3.71

KEY BROWSE ANNUAL LEADER GROWTH --
Management unit 29 , Study no: 4

Species	Average leader growth (in) '03
Amelanchier utahensis	5.0
Artemisia tridentata vaseyana	4.8
Purshia tridentata	6.4

POINT-QUARTER TREE DATA --
Management unit 29 , Study no: 4

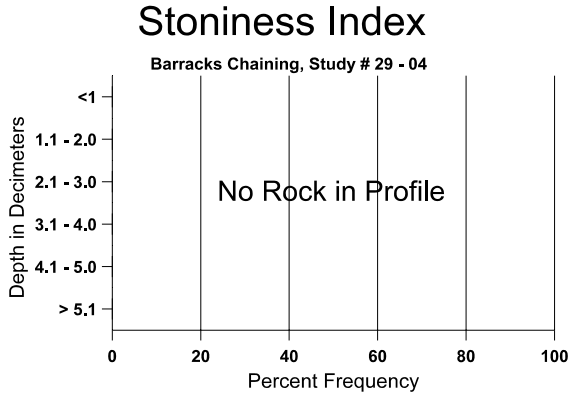
Species	Trees per Acre '03	Average diameter (in) '03
Juniperus osteosperma	47	3.1
Pinus edulis	56	2.6

BASIC COVER --
Management unit 29 , Study no: 4

Cover Type	Average Cover % '03
Vegetation	22.40
Rock	.03
Pavement	.04
Litter	42.29
Cryptogams	.21
Bare Ground	47.20

SOIL ANALYSIS DATA --
Management unit 29, Study no: 4, Study Name: Barracks Chaining

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	ds/m
16.1	70.8 (18.1)	6.5	62.6	14.7	22.7	1.0	4.0	448.0	0.5



PELLET GROUP DATA --
Management unit 29 , Study no: 4

Type	Quadrat Frequency '03	Days use per acre (ha) '03
Rabbit	35	-
Horse	1	-
Elk	1	-
Deer	31	45 (111)
Cattle	9	14 (34)

BROWSE CHARACTERISTICS --
Management unit 29 , Study no: 4

		Age class distribution (plants per acre)					Utilization				
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
Amelanchier utahensis											
03	**100**	-	40	60	-	-	40	0	-	0	81/92
Artemisia tridentata vaseyana											
03	**60**	-	-	40	20	-	33	33	33	0	16/27
Juniperus osteosperma											
03	**120**	-	120	-	-	-	0	0	-	0	-/-
Peraphyllum ramosissimum											
03	**0**	-	-	-	-	-	0	0	-	0	87/103
Pinus edulis											
03	**60**	-	20	40	-	-	0	0	-	0	-/-
Purshia tridentata											
03	**180**	-	-	120	60	-	56	44	33	11	54/86
Quercus gambelii											
03	**0**	-	-	-	-	-	0	0	-	0	26/25